

GPR116 KNOCKOUT AND CONDITIONAL KNOCKOUT MICE

SUMMARY

The National Cancer Institute's Mouse Cancer Genetics Program seeks partners interested in collaborative research to co-develop surfactant modulating agents for the treatment of surfactant related lung disorders.

REFERENCE NUMBER

E-269-2012

PRODUCT TYPE

- Research Materials

KEYWORDS

- Research Tool
- mouse model
- acute respiratory distress syndrome
- ARDS
- acute lung injury
- ALI
- lung surfactant homeostasis
- GPR116

COLLABORATION OPPORTUNITY

This invention is available for licensing.

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DESCRIPTION OF TECHNOLOGY

Pulmonary surfactant plays a critical role in preventing alveolar collapse by decreasing surface tension at the alveolar air-liquid interface. Surfactant deficiency contributes to the pathogenesis of acute lung injury (ALI) and acute respiratory distress syndrome (ARDS), common disorders that can afflict patients of all ages and carry a mortality rate greater than 25%. Excess surfactant leads to pulmonary alveolar proteinosis. NCI investigators created a G-protein coupled receptor GPR116 mutant mouse model and showed that GPR116 plays a previously unexpected, essential role in maintaining normal surfactant

levels in the lung.

The mouse model could aid in the development of drug screens to identify agents that can modulate surfactant levels. Alveolar type II cells have also been isolated from the GPR116 wildtype and knockout mice that could be directly used in such assays. The identification of surfactant modulating agents could be important to a number of lung surfactant disorders.

POTENTIAL COMMERCIAL APPLICATIONS

Useful as a research material to study lung surfactant homeostasis and disorders

COMPETITIVE ADVANTAGES

- This mutant mouse model is not available elsewhere

INVENTOR(S)

Brad St. Croix

DEVELOPMENT STAGE

- Pre-clinical (in vivo)

PUBLICATIONS

Yang MY, Hilton MB, Seaman S, Haines DC, Nagashima K, Burks CM, Tessarollo L, Ivanova PT, Brown HA, Umstead TM, Floros J, Chroneos ZC, St Croix B. Essential Regulation of Lung Surfactant Homeostasis by the Orphan G Protein-Coupled Receptor GPR116. Cell Rep (2013) 3(5):1457-1464. [PMID [23684610](#)]

PATENT STATUS

- **U.S. Filed:** Research use--no patent protection will be sought

THERAPEUTIC AREA

- Cancer/Neoplasm